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**UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/896,514	06/23/97	GARDNER	95-004M

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PM82/0402

EXAMINER
MAR. 11

ART UNIT
3515

PAPER NUMBER

DATE MAILED: 04/02/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary

Application No.

08/896,514

Applicant(s)

Conrad O. Gardner

Examiner

Michael Mar

Group Art Unit

3619

☒ Responsive to communication(s) filed on Jan 9, 2001☐ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire Three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 30-41 and 46-61 is/are pending in the application.Of the above, claim(s) 30-33 is/are withdrawn from consideration.☒ Claim(s) 61 is/are allowed.☒ Claim(s) 34-41 and 46-60 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.☐ received in Application No. (Series Code/Serial Number) _____☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☐ Notice of References Cited, PTO-892☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

1. In view of the appeal brief filed on Jan 9, 2001, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (a) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (b) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Applicant should note that some of the claims in Appendix A of the appeal brief have been misnumbered. Claim 55, second occurrence should be renumbered as claim 56. Claim 56 should be renumbered as claim 57.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 34-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 34-54 contains numerous instances in which the relationship between the parts of the hybrid vehicle have not been clearly defined.

Claim 55 is vague and unclear as to what power source provides the "instant powerful acceleration" and what is meant by "the cruise mode". The recitation "when the speed of the vehicle is dropping" is also vague and unclear since it is used together with "powerful acceleration". Also, the recitation "powerful acceleration" has no specific meaning since the word "powerful" is a relative term. What may be considered powerful acceleration for one type of vehicle could be considered weak acceleration for another type of vehicle.

In claim 56, the recitation "within a small range of speeds" is unclear as to whether vehicle speed or engine speed(rpm) is being referred to.

In claim 57, line 3, there is no antecedent basis for "the cruise mode".

In claim 58, the recitation "utilizing . . . vehicle" in lines 3-4 is vague and indefinite since there is no clear guideline as to what the power of "an equivalent weight internal combustion only powered vehicle" could be. For example, the power of internal combustion only powered vehicles could range from 100 to 400 HP.

In claim 60, line 3, there is no antecedent basis for "the cruise mode".

In claims 55, 56, & 59 the recitation "fast charge-discharge battery" is vague and unclear.

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Since the word "fast" is a relative term, a reference point for determining the definition of "fast" needs to be established.

5. Claims 34-41, 46-49, 53 and 54 would be allowable if amended to overcome the above rejection under 35 USC 112. The following changes to the aforementioned claims would place them in condition for allowance.

Amend claim 34 as follows:

line 2, insert --by first coupling means-- after "connected"

line 4, insert --for maintaining said vehicle at a selected vehicle speed-- after "conditions"

lines 4 & 6, change "first" to --second--

line 5, insert --and deactivating said first coupling means-- after "wheels"

line 6, insert --and activating said first coupling means-- after "means"

line 7, change "second" to --third--

line 10, insert --a-- after "at"

line 11, change "speed" to --rpm--

line 11, insert --during operation of said vehicle-- after "level"

Amend claim 36 as follows:

line 3, change "first" to --second--

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Amend claim 37 as follows:

lines 11, 14, 15 & 17, change "running state" to --vehicle speed--

line 13, change "an" to --the--

line 13, change "a", first occurrence, to --the--

line 13, change "a", second occurrence, --the detected--

line 16, insert --and-- after "value,"

Amend claim 38 as follows:

line 3, change "running state" to --vehicle speed--

line 4, cancel "a value less than a predetermined value to"

Amend claim 46 as follows:

line 7, cancel "without interrupting operation of said engine"

line 8, insert --while maintaining said engine in a continuous running condition--

after "clutch"

line 8, insert --for providing-- after "and"

Amend claim 53 as follows:

line 6, insert --circuit for maintaining said vehicle at a selected vehicle speed, said

control circuit-- after "control"

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line 8, change "coupling" to --decoupling--

line 9, change "to one of" to --from--

Amend claim 54 as follows:

line 4, insert --for maintaining said vehicle at a selected vehicle speed-- after "circuit"

line 8, insert --, said control circuit activating said electric motor for driving wheels of the vehicle during a cruise mode off condition and for de-activating said electric motor while activating said combustion engine for driving said wheels during a cruise mode on condition-- after "engine"

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 55 is rejected under 35 U.S.C. 102(b) as being anticipated by Kenyon (of record).

Note the engine and alternator arrangement which provides quick surges of power for rapid acceleration of the vehicle.

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8. Claim 55 is rejected under 35 U.S.C. 102(b) as being anticipated by Kim.

Note the continuously running low powered engine for operating the generator.

9. Claims 55, 57, 58 and 60 are rejected under 35 U.S.C. 102(b) as being anticipated by Ellers (of record).

With respect to claim 55, the engine is activated to operate a generator whenever the battery is low. With respect to claim 57, note that the internal combustion engine is used to power the vehicle only above 55 mph which would constitute a cruise mode and the electric motor is used at speeds below 55 mph for conditions when the cruise mode operations are not satisfied. With respect to claim 58, the engine is a small engine for maximum efficiency during cruise mode conditions. Regarding claim 60, the control 25 controls the engine and electric motor in responsive to vehicle operating parameters.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 50-52, 56 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellers(of record).

Ellers discloses a pre-programmed control 25 which activates the internal combustion engine 21 and the electric torque converter 35 for coupling the engine to the second pair of wheels 15 & 17 when the vehicle approaches a pre-selected desirable speed of 55 mph. Since Ellers describes the preselected desirable speed at which the engine is activated as a cruising speed(col. 1, lines 55-58), after this speed has been reached, the vehicle is in a condition which constitutes a "cruise mode on condition". When the speed drops below 55 mph, the control decouples the engine from the second pair of wheels. This condition constitutes a "cruise mode off condition". The control could also activate a second coupling 65 for connecting the engine to an electric generator 63 for charging a battery 5 during the "cruise mode off condition". The internal combustion engine 21, being a small engine with no throttle control, would operate at a constant speed for maximum efficiency and minimum pollution.

Since the cruise mode is set only when the vehicle has reached a predetermined speed, it would have been obvious to one of ordinary skill in the art at the time the invention was made to activate the cruise mode only after a predetermined period of time in which rapidly shifting power and speed demands have not occurred in order to provide a consistent speed for the cruise mode. With respect to claim 51, since Ellers teaches using the engine to drive the generator whenever the charged state of the battery is too low, it would have been obvious to activate the engine for charging the battery, even during periods of low speed when the electric motor is used to power

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the vehicle. With respect to claims 56 and 59, it would have been obvious to use a fast charge-discharge type of battery in the vehicle in order to permit rapid power transfer and recharging of the battery. Since nickel cadmium batteries were conventionally used at the time the invention was made, it would have been obvious to one of ordinary skill in the art to have used this type of battery in the hybrid vehicle.

12. Claim 61 is allowed.

13. **Any response to this action should be mailed to:**

Assistant Commissioner for Patents

Washington, D.C. 20231

or faxed to:

(703) 308-2571

(for formal communications intended be entered)

(all informal communications should be labeled "PROPOSED" OR "DRAFT")

or hand delivered to:

Crystal Park 5, 2451 Crystal Drive, Arlington, Virginia 22202

Seventh Floor(receptionist)

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mar at telephone number (703) 308-2087, or by e-mail to:

michael.mar@uspto.gov

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



MICHAEL MAR

3-12-01

Primary Examiner

M.Mar

March 12, 2001